

Claims

1. Apparatus comprising: a vial, said vial having a neck for receiving a needle, said neck configured to include a circumferential notch, a needle protection housing coupled to said neck via a collar, said needle protection housing pivotable to be in alignment along the longitudinal axis of said vial, said collar including a base configured to be press fitted onto said neck.
2. Apparatus of claim 1, wherein said base of said collar comprises an aperture formed by a plurality of converging planar extensions, adjacent pairs of said extensions at least partially separated by a space to allow said extensions to give way to enable said collar to slide along said neck when said collar is being press fitted onto said neck until said extensions reach said notch, said collar further comprising a circumferential sleeve rising from said base, the inner wall of said sleeve being threaded to accept a luer of said needle when said needle is mated to said neck of said vial.
3. Apparatus of claim 2, wherein said base of said collar is tightly coupled to said neck of said vial when the luer of said needle is fully threaded to said collar, said needle remaining threaded to said collar after said vial is used.
4. Apparatus of claim 2, wherein the inner wall of said sleeve is configured to be threaded only one way so that once fully threaded into said collar, the luer of said needle is prevented from being removed from said collar.
5. Apparatus of claim 1, wherein said vial is made of glass, said vial having an open end and a channel extending along said neck, a rubber gasket being provided inside said vial to partition the inside of said vial from the open end, said gasket movable along the interior of said glass vial to drive fluid stored therein through said channel to said needle, said gasket having a receptacle at its end facing the open end of said vial for accepting a plunger.

6. Apparatus of claim 1, wherein said housing comprises an integral needle grasping means for fixedly retaining the needle when said housing is pivoted to be in alignment along the longitudinal axis of said vial.

7. A needle protective device adapted to be used with a medicament container, comprising: an elongate housing having a longitudinal opening through which a needle attached to a neck of said medicament container passes when said housing is pivoted toward the needle, said housing pivotally connected to a collar, said collar being cup-shaped with a base having an aperture fitted to said neck of said medicament container, said aperture being formed from a plurality of planar extensions that mate to a notch circumferentially formed on said neck, said collar having a circumferential sleeve upraised from said base, the inner wall of said sleeve internally threaded for mating with a luer of the needle when the needle is mated to said neck, said housing pivotally connected to said collar, a locking mechanism at least said housing for fixedly retaining said needle relative to said housing after said needle passes into said housing.

8. Needle protective device of claim 7, wherein adjacent ones of said extensions of said base of said collar are separated by spaces to allow said extensions to give way when said collar is slidably fitted onto said neck, said extensions returning to their original shape once said extensions are seated at said notch, said collar remaining substantially fixed to said neck once said base is fitted about said notch of said neck.

9. Needle protection device of claim 7, wherein said medicament container comprises a glass vial having an open end, a rubber gasket being provided inside said vial to partition the inside of said vial from the open end, said gasket movable along the interior of said glass vial to control the flow of fluid to and from said container, said gasket having a receptacle at its end facing the open end of said vial for accepting a plunger for controlling the movement of said gasket in said vial.

10. Needle protection device of claim 7, wherein said medicament container comprises a syringe.

11. Needle protection device of claim 7, wherein said lock mechanism comprises a first portion at said collar and a second portion coactable with said first portion at said housing, said first and second portions coact to prevent said housing from being removed from said collar once said housing is pivoted toward and covers said needle.

12. A method of providing a needle protection housing to a medicament container having a neck at one end and an opening at another end, comprising the steps of:

- a) forming a circumferential notch around said neck of said container;
- b) forming a collar having a base including a central aperture formed by a plurality of converging planar extensions;
- c) extending upwards from said base an internally threaded circumferential sleeve as part of said collar;
- d) pivotally connecting a needle protection housing to said collar; and
- e) press fitting said collar to said neck of said container until said extensions of said base fit about said notch;

wherein when a needle having a luer end is mated to said neck of said container, said luer end is threadingly mated to said sleeve of said collar.

13. Method of claim 12, further comprising the steps of:

forming an opening longitudinally along said housing to allow said needle mated to said neck of said container to pass through when said housing is pivoted toward said needle; and

integrating a lock mechanism to said housing for fixedly retaining said needle when said housing is pivoted to cover said needle.

14. Method of claim 12, wherein said step b further comprising the step of:
separating adjacent pairs of said extensions at least partially by a space to allow
said extensions to give way to enable said base via its aperture to slide along said neck
when said collar is being press fitted onto said neck of said container until said extensions
reach said notch, said extensions tightly coupling said collar to said neck when said needle
is threadingly mated to said collar.

15. Method of claim 12, wherein said step b further comprising the step of:
providing a one way thread to the inner circumferential wall of said sleeve so that
once the luer end of said needle is fully threaded to said collar, said needle is not
removable from said collar.

16. In combination, a medicament container having a neck with a circumferential notch
formed at a proximal end thereof, a fluid communication path being established between
the inside of said container and the environment through said neck, a cup-shaped collar
having a base with an aperture formed by a plurality of converging extensions fitted about
said notch of said neck, a circular sleeve rising from said base with the lip of said sleeve
pointing toward the distal end of said neck, the inner wall of said sleeve being threaded to
receive a luer end of a needle when said needle is mated to said neck, a housing
connected to said base and pivotable to a position in alignment along the longitudinal axis
of said container, said housing having an integral hook for grasping said needle when said
housing is pivoted to the alignment position.

17. Combination of claim 16, wherein said base comprises a plurality of spaces each
separating adjacent pairs of said converging extensions for enabling said base to be readily
press fitted onto said neck, said base fitting tightly about said neck at said notch when said
luer end of said needle is fully threaded into said collar.

18. Combination of claim 16, wherein the thread formed on the inner wall of said sleeve is configured to prevent said luer end from being removed from said collar once it is fully threaded into said collar.
19. Combination of claim 16, wherein said container comprises a glass vial.
20. Combination of claim 16, wherein said container comprises a syringe.